

WACA/WSDOT Meeting

Discuss Fly Ash Shortage WACA/WSDOT

Minutes for April 26, 2006 Meeting

Attendees:

Jim Walter, WSDOT	Kent Balcom, Headwaters	Craig Matteson, Central Pre
Rich Halverson, Headwaters	Kurt Williams, WSDOT	Tom McGraw, Lafarge
Felix Chandra, Stoneway	Dick Boss, Cadman	Robert Raynes, Rinker
Bruce Chattin, WACA	Bob Schultz, Stanwood Redi	Tom Howerton, Rinker
Neil Guphill, Glacier NW	John Tellvik, Degussa	Scott Di Loreto, Degussa
Mohammad Sheikhezadeh, WSDOT		

Location: WACA's office, 22223 7th Ave. South, Des Moines, WA. 98198

Meeting Minutes:

Date for Next WACA Meetings: Thursday, May 25th – WSDOT HQ Mats Lab
9:30 AM – 12:00 Noon

Future WACA Meetings Dates:

October 12, 2006 at WACA's office Des Moines

December 7, 2006 at WSDOT HQ Mats Lab

Issue: Identify impacts of fly ash shortage, WSDOT mixes CDF, 4000D and 4000P. **Identify short term and long term solutions:**

04/26/06 – Rich Halverson with Headwaters reviewed the current information his company had on fly ash supply. Rich noted with the large amount of water runoff from the snow pack, Hydro power from the dams is cheaper than coal generated power. The Centralia Power plant has shut down for economic reasons, and is not expected to start back up until possibly June or later this year. Headwaters has a limited supply of fly ash available in silos, and is looking into options to import fly ash from other sources. And the limited availability of rail cars restricts the ability to transport fly ash from other states and Canada. Rich asked about approval for imported fly ash. Jim W. noted that WSDOT would need to get samples and if the fly ash was used for the purpose of mitigating fly ash, ASR testing would be required on pits that exceeded thresholds requiring mitigation. Robert R. noted that very few pits are above the .45 threshold requiring mitigation and didn't see a demand for fly ash for this. Tom M. asked about using Lean concrete for fill in lieu of CDF. It was noted that the need to be able to excavate the material in the future would need to be considered as well as the strength requirements for CDF would need to be met. If the material did not need to be excavated in the future then lean concrete could be considered as an option. The group discussed the issue further and identified the following action items

CDF

Group discussed CDF at length and developed the following action items:

- *Look into lowering strength limit on CDF from 100 psi to 50 psi. – WSDOT*
- *Accept CDF mixes that do not have fly ash, such as CDF with cement only or cement and slag as long as strength requirements (100 psi to 275 psi) are met.*
- *Communicate with WSDOT construction offices that fly ash is in short supply and alternatives to current specifications will be considered and mix designs need to be brought to HQ Construction attention for review and approval. - WSDOT*
- *Cement availability is a concern and alternatives to CDF should be considered when appropriate such as lean concrete or backfill. -Industry/WSDOT*
- *Update Standard Specification for CDF to allow alternate CDF mixes and update strength requirements – WSDOT*
- *Consider the use of lean concrete as a substitute for CDF, where future excavation is not an issue. –WSDOT*
- *Industry to review contracts with WSDOT and identify projects calling for CDF and submit alternate mix design for CDF to project offices.*
- ***Submittals needed for alternate CDF mix.***
 1. *Submit CDF mix design with 28 day breaks to Project Office.*
 2. *If 28 day break information is not available submit CDF mix design with interim break information available (7-day, 14 day) and include date when 28 day break will be done. WSDOT will review at consider approval based upon acceptable field performance. Submit 28 day breaks when they become available.*

4000D and 4000P

Group discussed fly ash requirements for 4000D (75 pounds per cubic yard) and 4000P (100 pounds per cubic yard), at length and developed the following action items:

- *Priority is to keep fly ash for 4000D mix as much as possible.*
- *WSDOT will consider alternate concrete mix designs for 4000P and 4000D if fly ash unavailable, first alternate is to use slag.*
- *If neither fly ash nor slag is available WSDOT is open to alternate concrete mix design submittals from suppliers for both 4000D and 4000P.*
- *Review and update current Standard Specifications requirement for fly ash in 4000D and 4000P – WSDOT*
- *Communicate with WSDOT construction offices that fly ash is in short supply and alternatives to current specifications will be considered and mix designs need to be brought to HQ Construction attention for review and approval. – WSDOT*
- *Industry to review contracts with WSDOT and identify projects calling for 4000D and 4000P and submit alternate mix design for these concrete mixes to WSDOT project offices.*
- ***Submittals needed for alternate 4000P mix:***
 1. *Submit Alternate 4000P mix design with 28 day breaks to Project Office.*

2. *Include information on Constructability of mix and past placement performance of mix in wet shafts.*
3. *Drillers need to agree with alternate proposed mix design.*
- ***Submittals needed for 4000D:***
 1. *Submit alternate 4000D mix design with 28 day breaks to Project Office.*

Action Plan: Update group at next WACA meeting. Headwaters, WACA, WSDOT.

Soldier pile concrete mix that could be used in place of CDF – Mo

04/26/06 – Mo handed out draft revisions to Section 6-16.3(5) Backfilling Shafts, and Section 6-16.3(6) Installing Timber Lagging and Permanent Ground Anchors. See the bottom of these notes for copies of the handouts. Mo noted that there had been slight changes to the specification since it had been printed and that he is reviewing the lower strength requirement, currently 100 psi, and this may be revised. John Tellvik asked, if the use of Viscosity Modifying Admixtures (VMA) would be allowed? Mo responded that VMA's would be allowed. John T. asked, if accelerators would be allowed? Mo responded that non-chloride accelerators would be allowed for this and other applications. Mo noted that we [WACA & WSDOT] need to start a dialogue on this topic to discuss the use of accelerators in other concrete mixes. Comments noted on the Section 6-16.3(6) changes were the use of the word, "set," is defined as completely set and this needs to be reworded. The group discussed the specifications briefly and Mo agreed to bring the changes back to the next WACA meeting.

6-16 SOLDIER PILE AND SOLDIER PILE TIEBACK WALLS

6-16.3 Construction Requirements

6-16.3(5) Backfilling Shaft

The excavated shaft shall be backfilled with either controlled density fill (CDF), or pumpable lean concrete, as shown in the Plans and subject to the following requirements:

1. Dry shaft excavations shall be backfilled with CDF.
2. Wet shaft excavations shall be backfilled with pumpable lean concrete.
3. Pumpable lean concrete shall be a Contractor designed mix providing a minimum 28 day compressive strength of 100 psi. Acceptance of pumpable lean concrete will conform to the acceptance requirements specified in Section 2-09.3(1) for CDF.
4. A wet shaft is defined as a shaft where water is entering the excavation and remains present to a depth of six inches or more.

5. When the Plans or test hole boring logs identify the presence of a water table at or above the elevation of the bottom of soldier pile shaft, the excavation shall be considered as wet, except as otherwise noted. Such a shaft may be considered a dry shaft provided the Contractor furnishes and installs casing that is sufficiently sealed into competent soils such that water cannot enter the excavation. Placement of the shaft backfill shall commence immediately after completing the shaft excavation and receiving the Engineer's approval of the excavation. CDF or pumpable lean concrete shall be placed in one continuous operation to the top of the shaft. Vibration of shaft backfill is not required.

If water is not present, the shaft backfill shall be deposited by a method that prevents segregation of aggregates. The shaft backfill shall be placed such that the free-fall is vertical down the shaft without hitting the sides of the soldier pile or the excavated shaft. The Contractor's method for depositing the shaft backfill shall have approval of the Engineer prior to the placement of the shaft backfill.

If water is present, the shaft backfill shall be deposited in accordance with Section 6-02.3(6)B.

6-16.3(6) Installing Timber Lagging and Permanent Ground Anchors

The excavation and removal of CDF and pumpable lean concrete for the lagging installation shall proceed in advance of the lagging, and shall not begin until the CDF and pumpable lean concrete are of sufficient strength that the material remains in place during excavation and lagging installation. If the CDF or pumpable lean concrete separates from the soldier pile, or caves or spalls from around the pile, the Contractor shall discontinue excavation and timber lagging installation operations until the CDF and pumpable lean concrete is completely set. The bottom of the excavation in front of the wall shall be level. Excavation shall conform to Section 2-03.

For walls without permanent ground anchors, the bottom of excavation shall be not more than three feet below the bottom level of the timber lagging already installed. For walls with permanent ground anchors, the bottom of

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shown in the Plans.

excavation shall be not more than 3-feet below tieback anchor level until all permanent ground anchors at that level are installed and stressed. Installing, stressing, and testing the permanent ground anchors shall be in accordance with Section 6-17 and the construction sequence specified in the Plans.

Unless otherwise specified, timber lagging in walls with concrete fascia panels shall be untreated. Timber lagging for all other walls shall be treated.

The lagging shall be installed from the top of the pile proceeding downward. The timber lagging shall make direct contact with the soil. Voids shall be filled with gravel backfill for walls, which shall be considered incidental to the installation of the timber lagging.

Where timber lagging and backfill are above the existing or excavated ground line, the lagging and backfill shall be placed concurrently. The backfill layers shall be placed in accordance with Section 2-03.3(14) except that all layers shall be compacted to 90 percent of maximum density.